SEQ ID NO:	Sequence
1	*Rana pipiens* liver ribonuclease cDNA (RaPLR1)
2	*Rana pipiens* liver ribonuclease amino acid (RaPLR1)
3	*Rana pipiens* ribonuclease cDNA with Met23Leu (recombinant RaPLR1 Met 23Leu)
4	*Rana pipiens* ribonuclease amino acid with Met23Leu (recombinant RaPLR1 Met 23Leu)
5	*Rana pipiens* ribonuclease cDNA with Met at position 1 (recombinant Met(-1) RaPLR1)
6	*Rana pipiens* ribonuclease amino acid with Met at position 1 (recombinant Met(-1) RaPLR1)
7	*Rana pipiens* ribonuclease cDNA with Met at position 1 and Met24Leu (recombinant Met(-1) RaPLR1 Met23Leu)
8	*Rana pipiens* ribonuclease amino acid with Met at position 1 and Met24Leu (recombinant Met(-1) RaPLR1 Met23Leu)
9	*Rana pipiens* ribonuclease amino acid with (His)$_6$, Met at position 7 and Met30Leu (recombinant Met(-1) RaPLR1 Met23Leu-(His)$_6$)
10	*Rana pipiens* ribonuclease cDNA with Gln1Ser (recombinant RaPLR1 Q1S)
11	*Rana pipiens* ribonuclease amino acid with Gln1Ser (recombinant RaPLR1 Q1S)
12	*Rana pipiens* ribonuclease cDNA with Met at position 1 and Gln2Ser (recombinant Met(-1) RaPLR1 Q1S)
13	*Rana pipiens* ribonuclease amino acid with Met at position 1 and Gln2Ser (recombinant Met(-1) RaPLR1 Q1S)
14	*Rana catesbeiana* oocyte ribonuclease synthetic gene cDNA (RaCOR1)
15	*Rana catesbeiana* oocyte ribonuclease synthetic gene amino acid (RaCOR1)
16	*Rana catesbeiana* ribonuclease cDNA with Met at position 1 (recombinant Met(-1) RaCOR1)
17	*Rana catesbeiana* ribonuclease amino acid with Met at position 1 (recombinant Met(-1) RaCOR1)
18	*Rana catesbeiana* ribonuclease cDNA with Met22Leu and Met57Leu (recombinant RaCOR1 Met22Leu Met57Leu)
19	*Rana catesbeiana* ribonuclease amino acid with Met22Leu and Met57Leu (recombinant RaCOR1 Met22Leu Met57Leu)
20	*Rana catesbeiana* ribonuclease cDNA with Met at position 1, Met23Leu and Met58Leu (recombinant Met(-1) RaCOR1 Met22Leu Met57Leu)
21	*Rana catesbeiana* ribonuclease amino acid with Met at position 1, Met23Leu and Met58Leu (recombinant Met(-1) RaCOR1 Met22Leu Met57Leu)
22	*Rana catesbeiana* ribonuclease amino acid with (His)$_6$, Met at position 7, Met23Leu and Met58Leu (recombinant Met(-1) RaCOR1 Met22Leu Met57Leu-(His)$_6$)
23	*Rana catesbeiana* ribonuclease cDNA with Gln1Ser (recombinant RaCOR1 Q1S)
24	*Rana catesbeiana* ribonuclease amino acid with Gln1Ser (recombinant RaCOR1 Q1S)
25	*Rana catesbeiana* ribonuclease cDNA with Met at position 1 and Gln2Ser (recombinant Met(-1) RaCOR1 Q1S)

26	*Rana catesbeiana* ribonuclease amino acid with Met at position 1 and Gln2Ser (recombinant Met(-1) RaCOR1 Q1S)
27	*Rana pipiens* ribonuclease Clone 5a1b cDNA insert
28	*Rana pipiens* ribonuclease Clone 5a1b amino acid with signal peptide
29	CAAX motif to target heterologous proteins to the plasma membrane
30	*Rana pipiens* forward degenerate primer
31	*Rana pipiens* reverse degenerate primer
32	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
33	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
34	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
35	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
36	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
37	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
38	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
39	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
40	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
41	*Rana catesbeiana* ribonuclease synthetic gene (RaCOR1) oligonucleotide
42	*Rana catesbeiana* insertion primer for *Nde*I restriction site
43	six histidine residue tag at amino terminus

SEQ ID NO:1/2

DNA sequence   312 b.p.   linear

caa gac cgg ctc acg ttc cag aag aag cac ctg aca aac acc cgg gac gcc gac tgc aac
gln asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys asn

aat atc acg tca aca aac ctg ttc cac tgc aag gac aag aac acc ttc acc tat cca cgc
asn ile met ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser arg

cct gag cca gtg aag gcc atc tgc aaa gga atc ata gcc tcc aaa aat gtg cca act acc
pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr thr

cct gag ttc tat ctc tct gac tgc aac gca aca agc agg ccc tgc aag tat aaa tca aag
ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu lys

aaa tca act aac aca ttc tgc gta act tgc gag aat caa gct cca gta cat ttc gtg ggt
lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val gly

gtc gga cat tgc
val gly his cys

RaPLR1

SEQ ID NO:3/4

DNA sequence   315 b.p.   linear

caa gac tgg ctc acg ttc cag aag aag cac ctg aca aac acc cgg gac gtc gac tgc
gln asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys

aat aat act ctg tca aca aac ctg ttc cac tgc aag gat aag aac acc ttc atc tac tca
asn asn ile leu ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser

cgt ccc gag cca gtg aag gcc atc tgt aaa gga atc ata gcc tcc aaa aat gtg tca acc
arg pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr

acc tct gag ttc tac ctc tcc gac tgc aac gca aca agc agg ccc tgc aag tac aaa cta
thr ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu

aag aaa tca acc aac aca ttc tgc gta act tgt gag aac caa gcc cca gta cat ttc gtg
lys lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val

ggt gtc gga cat tgc
gly val gly his cys

recombinant RaPLR1 Met23Leu

SEQ ID NO:5/6

DNA   sequence   115 b.p.   linear

```
acg caa gac tgg ctc acg ttc cag aag aag cac ctg aca aac acc cgg gac gtc gac cgt
met gln asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys

aat aac atc atg tca aca aac ctg ttc cac tgc aag gac aag aac acc ttc atc tac cca
asn asn ile met ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser

cgt cct gag cca gtg aag gcc acc tgc aaa gga atc ata gcc tcc aaa aat gtg cta acc
arg pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr

acc tct gag ttt tat ctc tcc gat tgc aat gca aca agc agg cct tgc aag tac aaa cta
thr ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu

aag aaa tca acc aat aca ttc tgc gca act tgc gag aac caa gcc cca gta cat ttc gtg
lys lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val

ggc gtc gga cat tgc
gly val gly his cys
```

recombinant Met(-1) RaPLR1

SEQ ID NO:7/8

DNA   sequence   315 b.p.   linear

```
atg caa gac tgg ctt acg ttc cag aag aag cac ctg aca aac acc cgg gat gtt gac tgt
met gln asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys

aat aat att ctg tca aca aac ttg ttc cac tgc aag gac aag aac act ttt atc tat tca
asn asn ile leu ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser

cgt cct gag cca gtg aag gcc atc tgt aaa gga att ata gcc tcc aaa aat gtg tta act
arg pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr

acc tct gag ttc tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta
thr ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu

aag aaa tca act aat aca ttc tgt gta act tgt gag aat caa gct cca gta cat ttc gtg
lys lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val

ggt gtc gga cat tgc
gly val gly his cys
```

recombinant Met(-1) RaPLR1 Met23Leu

SEQ ID NO:7/9

DNA sequence   315 b.p.   linear


```
           acg caa gac tgg ctc acg ttc cag aag aag cac ctg aca aac acc cgg gat gtc gac tgc
(His)6- met gln asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys

           aat aat acc ctg tca aca aac ttg ttc cac tgc aag gac aag aac acc ttc atc tac tca
           asn asn ile leu ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser

           cgt ccc gag cca gtg aag gcc acc tgt aaa gga att ata gcc tcc aaa aat gtg cca acc
           arg pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr

           acc ttc gag ttc tac ctc tct gac tgc aac gta aca agc agg cct tgc aag tac aaa cta
           thr ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu

           aag aaa tca act aat aca ttc tgc gta act tgt gag aac caa gct cca gta cat ttc gtg
           lys lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val

           ggc gtc gga cac tgc
           gly val gly his cys
```


recombinant Met(-1) RaPLR1 Met23Leu-(His)6

DNA sequence   315 b.p.   linear

```
tca gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat gtt gac tgt
ser asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys

aat aat atc atg tca aca aac ttg ttc cac tgc aag gac aag aac act ttt atc tat tca
asn asn ile met ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser

cgt cct gag cca gtg aag gcc atc tgt aaa gga att ata gcc tcc aaa aat gtg tta act
arg pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr

acc tct gag ttt tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta
thr ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu

aag aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca gta cat ttc gtg
lys lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val

ggt gtc gga cat tgc
gly val gly his cys
```

recombinant RaPLR1 Q1S

SEQ ID NO:12/13

DNA sequence   315 b.p.   linear

atg tca gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat gtt gac tgt
met ser asp trp leu thr phe gln lys lys his leu thr asn thr arg asp val asp cys

aat aat atc atg tca aca aac ttg ttc cac tgc aag gac aag aac act ttt atc tat tca
asn asn ile met ser thr asn leu phe his cys lys asp lys asn thr phe ile tyr ser

cgt cct gag cca gtg aag gcc atc tgt aaa gga att ata gcc tcc aaa aat gtg tta act
arg pro glu pro val lys ala ile cys lys gly ile ile ala ser lys asn val leu thr

acc tct gag ttt tat ctc tcc gat tgc aat gta aca agc agg cct tgc aag tat aaa tta
thr ser glu phe tyr leu ser asp cys asn val thr ser arg pro cys lys tyr lys leu

aag aaa tca act aat aca ttc tgt gta act tgt gag aat caa gct cca gta cat ttc gtg
lys lys ser thr asn thr phe cys val thr cys glu asn gln ala pro val his phe val

ggt gtc gga cat tgc
gly val gly his cys

recombinant Met(-1) RaPLR1 Q1S

SEQ ID NO:14/15

DNA sequence   330 b.p.   linear

```
CAG AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC ACT
gln asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn thr

ATC ATG GAC AAC AAC ATC TAC ATC GTT GGT GGT CAG TGC AAA CGT GTT AAC ACT TTC ATC
ile met asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe ile

ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC ATG AAC GTT CTG
ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn met asn val leu

TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT GGT ACT TCT ATC ACT CCG CGT CCG TGC
ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro cys

CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC CCG
pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr pro

GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
val his phe ala gly ile gly arg cys pro
```

Rana *catesbeiana* synthetic gene & translated amino acid sequence

SEQ ID NO:16/17

DNA sequence   333 b.p.   linear

```
ATG CAG AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC
met gln asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn

ACT ATC ATG GAC AAC AAC ATC TAC ATC GTT GGT GGT CAG TGC AAA CGT GTT AAC ACT TTC
thr ile met asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe

ATC ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC ATG AAC GTT
ile ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn met asn val

CTG TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT CGT ACT TCT ATC ACT CCG CGT CCG
leu ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro

TGC CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC
cys pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr

CCG GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
pro val his phe ala gly ile gly arg cys pro
```

[Met-(-1)] Rana catesbeiana gene & translation of expressed protein

SEQ ID NO:18/19

DNA   sequence   333 b.p.   linear

```
CAG AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC
gln asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn

ACT ATC CTG GAC AAC AAC ATC TAC ATC GTT GGT GGT CAG TGC AAA CGT GTT AAC ACT TTC
thr ile leu asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe

ATC ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC CTG AAC GTT
ile ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn leu asn val

CTG TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT CGT ACT TCT ATC ACT CCG CGT CCG
leu ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro

TGC CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC
cys pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr

CCG GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
pro val his phe ala gly ile gly arg cys pro
```

Rana *catesbeiana* gene with two mutations
to regenerate pyroglutamic acid N-terminal
        Met 22 Leu
        Met 57 Leu

SEQ ID NO:20/21

DNA sequence 333 b.p. linear

ATG CAG AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC
met gln asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn

ACT ATC CTG GAC AAC AAC ATC TAC ATC GTT GGT CGT CAG TGC AAA CGT GTT AAC ACT TTC
thr ile leu asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe

ATC ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC CTC AAC GTT
ile ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn leu asn val

CTG TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT CGT ACT TCT ATC ACT CCG CGT CCG
leu ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro

TGC CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC
cys pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr

CCG GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
pro val his phe ala gly ile gly arg cys pro

[Met-(-1)] Rana catesbeiana gene with two mutations
to regenerate pyroglutamic acid N-terminal
        Met 22 Leu
        Met 57 Leu

SEQ ID NO:20/22

DNA sequence   333 b.p.   linear

```
       ATG CAG AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC
(His)6- met gln asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn

       ACT ATC CTG GAC AAC AAC ATC TAC ATC GTT GGT GGT CAG TGC AAA CGT GTT AAC ACT TTC
       thr ile leu asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe

       ATC ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC CTG AAC GTT
       ile ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn leu asn val

       CTG TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT CGT ACT TCT ATC ACT CCG CGT CCG
       leu ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro

       TGC CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC
       cys pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr

       CCG GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
       pro val his phe ala gly ile gly arg cys pro
```

[Met-(-1)] Rana catesbeiana gene with two mutations
to regenerate pyroglutamic acid N-terminal

    Met 22 Leu
    Met 57 Leu
    (His)6

SEQ ID NO:23/24

DNA sequence   333 b.p.   linear

TCA AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC
ser asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn

ACT ATC ATG GAC AAC AAC ATC TAC ATC GTT GGT GGT CAG TGC AAA CGT GTT AAC ACT TTC
thr ile met asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe

ATC ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC ATG AAC GTT
ile ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn met asn val

CTG TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT CGT ACT TCT ATC ACT CCG CGT CCG
leu ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro

TGC CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC
cys pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr

CCG GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
pro val his phe ala gly ile gly arg cys pro

Q1S Rana *catesbeiana* gene
(serine in 1 position)

SEQ ID NO:25/26

DNA sequence 333 b.p.   linear

ATG TCA AAC TGG GCT ACT TTC CAG CAG AAA CAT ATC ATC AAC ACT CCG ATC ATC TGC AAC
met ser asn trp ala thr phe gln gln lys his ile ile asn thr pro ile ile cys asn

ACT ATC ATG GAC AAC AAC ATC TAC ATC GTT GGT GGT CAG TGC AAA CGT GTT AAC ACT TTC
thr ile met asp asn asn ile tyr ile val gly gly gln cys lys arg val asn thr phe

ATC ATC TCT TCT GCT ACT ACT GTT AAA GCT ATC TGC ACT GGT GTT ATC AAC ATG AAC GTT
ile ile ser ser ala thr thr val lys ala ile cys thr gly val ile asn met asn val

CTG TCT ACT ACT CGT TTC CAG CTG AAC ACT TGC ACT CGT ACT TCT ATC ACT CCG CGT CCG
leu ser thr thr arg phe gln leu asn thr cys thr arg thr ser ile thr pro arg pro

TGC CCG TAC TCT TCT CGT ACT GAA ACT AAC TAC ATC TGC GTT AAA TGC GAA AAC CAG TAC
cys pro tyr ser ser arg thr glu thr asn tyr ile cys val lys cys glu asn gln tyr

CCG GTT CAT TTC GCT GGT ATC GGT CGT TGC CCG
pro val his phe ala gly ile gly arg cys pro

[Met-(-1)] Q1S Rana catesbeiana gene
(serine in 1 position)

```
   1   atcagttgct catcgtttga ccaagttgtt ttccatctga agcaatattt
  51   atatataatt tctcttatat ataaaggcct gatcacgact tccagaatgt
                                                            M  F
 101   ttccaaaatt ctcatttctc ctgatatttg cagttgtttt gagtctcact
        P  K  F  S  F  L  L  I  F  A  V  V  L  S  L  T
 151   cataagtcct tatgtcaaga ctggcttacg tttcagaaga agcacctgac
        H  K  S  L  C  Q  D  W  L  T  F  Q  K  K  H  L  T
 201   aaacacccgg gatgttgact gtaataatat catgtcaaca aacttgttcc
        N  T  R  D  V  D  C  N  N  I  M  S  T  N  L  F  H
 251   actgcaagga caagaacact tttatctatt cacgtcctga gccagtgaag
        C  K  D  K  N  T  F  I  Y  S  R  P  E  P  V  K
 301   gccatctgta aaggaattat agcctccaaa aatgtgttaa ctacctctga
        A  I  C  K  G  I  I  A  S  K  N  V  L  T  T  S  E
 351   gttttatctc tctgattgca atgtaacaag caggccttgc aagtataaat
        F  Y  L  S  D  C  N  V  T  S  R  P  C  K  Y  K  L
 401   taaagaaatc aactaataca ttttgtgtaa cttgtgagaa tcaagctcca
        K  K  S  T  N  T  F  C  V  T  C  E  N  Q  A  P
 451   gtacatttcg tgggtgtcgg acattgctag aaatatgttt gacaacaggg
        V  H  F  V  G  V  G  H  C  *
 501   atgtgataag cagctgcaag aaattatttt gaagtgaatt tactaaagac
 551   actaattttg cataaatttt ccccagagct taccggtagt aagaaaattc
 601   caacagggag ccaagcacag aaagtaaact aaggagccaa agtaattata
 651   aaagtcacac tggaccgctg ctactgcact cagatgacca aatgagaaac
 701   agacaaaaac agcagagttg ggaagcgcag atccgggagg tggcgggggag
 751   tcaattgggg atggagtcca tgtgagattt ggaaccgttt gttgctggtg
 801   aagcatgtgg ccggtgcaca gtacacatgg ggaaagatag tcggattggc
 851   cgggctcgct gtggtggtgc cggcggttga gccaaaggtg gtggggagat
 901   ggctgtcccc ccttctgtgg gggctgtgga cagagggagc tgcggaccag
 951   gggtggggagg cctggagaga attttcaaac agctgacgtg ccgggggctg
1001   ggcagcatcg gggaggggaa gggctgggct cagatccagg aagcatggtc
1051   actgtatgac cagagtggaa gatggcagag ccgctgcagt ggccggggag
1101   accagaggga tctgtgccca gcctttcccc tccctgatgt ggcccgtttt
1151   tggttatggt aaccgctccc agctgtttgg gggtgttttc gggcttcgca
1201   ttttttggtct gcggctccct ctgtccacgg ccctcatgga ggggggggtgg
1251   gcatttctcc accgcctttg gctctgttgc tggcactgtc gcagcgagtt
1301   tggccagtca tggctcattt tcccatttgt catgtgtgtt ggttgcatgt
1351   tttgtcggcg gtggactgtt ttgaatttca catggattcc atcttcggtt
1401   ggttccttgc cacctcctgg atctgtgctt tccaattctg ttttttcccc
1451   agcgcttagt ggatgcagtg aaactctggt gattaccatc atccaatcat
1501   gtgcaagaaa aaatattttc atattcttc cacccaattg ggtattcatt
1551   aggaagtttg agcacattca cgttctaggg aaaatgagtg caactgcact
1601   tccaaagttc acagtctatt tgcctttagt aaatccaccc cattatttct
1651   gagcagagga caaatctatg gcaacaaaaa aactttacct actgaattat
1701   tttatattga ttgaagataa tctttctttc atttcctaaa tattgtaatc
1751   aaaattaata cataacagct atgtattata ccacagcagc aaatgttaaa
1801   atagttttaa acgtaaaata tgttttacct taaagtggaa gtaaacttct
1851   atcactaaat tttacctata ggtgagaccc atgcgctctt caggaatggc
1901   cgctggtgct gttccttcag agccctgtgc tgcgaacggc ggctcccgtg
1951   tgcatgtaca ggagtgacgt catcacagct ccggccagtc acagagttag
2001   agttcaagtg tgagtggctt gagccacgat gatgtcgctc ccaaacatgt
2051   gtgcgggggt ctccgtttgc ggcgcaggac actggggggaa tagcatgggt
2101   gtgccgttcc ttcagagcat atgcgtgggt gacgtcacta gctgcatcta
```

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2151   aagtaatatc tcctaaacaa tgcacattta ggagatagtt acagtaccta
2201   tgggtaagcc ttattgtagg cttacctata ggtaaaaatc atgcatggga
2251   gtttacttcc actttaacac cggcatagct gcgtgtttat aaaccaacca
2301   gcagtagcaa atgtagggat gaggagagca ggctgacata ttaaagtaaa
2351   aatcttacct atagtggttg aaagtagttg aaaataagat ggcctgcagg
2401   gtcttaaaaa ggctaggata gcacagtatc cacatgaggc accagatctc
2451   gctcccccac acatgagtag caaggagcaa tggtaatgtg agtttcttag
2501   gctcgaccgt taaatagcgt tggccctcca agtgatacat gggagataag
2551   cagatgtccg cgtatgcacg cagacatatg tgggcggatg ttgggatagg
2601   acgatcagag agatgctcag atctgcccga aggagaaagg tggaaacatc
2651   cattcaatgt catatgccta aagaagccac ccaccataaa aagttaatag
2701   atcatcaggt ggcagccaac cacaccaggc ccaaaggagg gtggccccag
2751   tggaccgtat aggaacagca ctcagctatc acataattac acaagagtat
2801   agagacccat tgtgggtatt aacaaccaaa tggctaaaaa aaaaaaaaaa
2851   aaaaa
```